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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,542

11/10/2006

Mats Sundstrom

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1933 7590 05/28/2009
FRISHAUF, HOLTZ, GOODMAN & CHICK, PC
220 Fifth Avenue
16TH Floor
NEW YORK, NY 10001-7708

EXAMINER

ZOLLINGER, NATHAN C

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

05/28/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,542	Applicant(s) SUNDSTROM ET AL.	
	Examiner NATHAN ZOLLINGER	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>20060412</u> . | 6) <input type="checkbox"/> Other: ____. |

Specification

The abstract of the disclosure is objected to because of multiple usage of the word "said" (e.g., "said compressor"). Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, Applicant discusses the term "torque" generically. However, there's torque, as required by your load, and torque, as available at your motor output. Both are critically important to select and design a drive for maximum efficiency (see *Matching Motor Torque to your Load* article). When applicant states that the "torque is halved" examiner is unable to ascertain whether this is due to a change in motor output (due to, perhaps, motor gearing) or whether this is due to a change in motor loading. Examiner therefore requests additional clarification and will herein assume that "torque" refers to changing the motor load. As an additional side, applicant displays and initially defines Figure 4 as a "torque curve as a function of its rotation speed" (Specification, p.3, lines 28-29). However, thereafter, applicant confusingly talks about varying the torque to produce a change of speed (e.g., Specification, p.3, lines 30-35). A more consistent approach would be helpful in clarifying the applicant's disclosure.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, Applicant discusses the term "torque" generically without clarification as to whether the torque is the output torque from the motor or whether the torque is the load torque placed upon the motor. When applicant states that the "torque is halved" examiner is unable to ascertain whether this is due to a

change in motor output (due to, perhaps, motor gearing) or whether this is due to a change in motor loading. Examiner therefore requests additional clarification and will herein assume that "torque" refers to changing the motor load.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartwig et al. (US 4,492,526) in view of Burkholder et al. (US 7,081,698).

Referring to claims 1-2: Hartwig discloses a helical screw rotor compressor (101; col. 3, lines 4-5) which is adapted to work against a pressure container (106) whose pressure is allowed to vary between a lowest pressure P2 and a highest pressure P1 (col. 3, lines 40-63; "minimum pressure" and "maximum pressure"), said compressor being driven by an electric motor (23). However, Hartwig does not disclose a motor with a characteristic such that halving of the torque of said motor will result in an increase of at least six percent and at most 100 percent in the speed of said motor. Burkholder discloses a motor which operates with an increase between 6 and 100 percent when the torque is halved (see Figs. 19A-19B). It would be obvious to employ a motor as taught by Burkholder in the compressor of Hartwig in order to provide better motor efficiency and power output (col. 7, lines 45-48).

Referring to claim 3: Hartwig and Burkholder teach the limitations of claim 1, discussed previously. Hartwig also does not disclose an electric motor that is a commutator motor. Burkholder teaches a commutator motor (col. 7, lines 49-55).

Referring to claim 4: Hartwig and Burkholder teach the limitations of claim 1, discussed previously. Moreover, Hartwig discloses a compressor optimised for an internal volume factor at which the pressure of the compressor is lower than $P_2 + 0.85^* (P_1 - P_2)$ at the opening instance (col. 3, lines 24-26).

Referring to claim 5: Hartwig and Burkholder teach the limitations of claim 4, discussed previously. Moreover, Hartwig and Burkholder teach a compressor characterized in that the compressor is optimised for an internal volume factor at which the pressure of the compressor is equal to the lowest working pressure P_2 in the pressure container at the opening instance. Examiner notes that the Hartwig reference includes an additional gas vessel (104) which is depressurized before every subsequent start of the motor compressor; additionally, Examiner also notes that a lowest working pressure (P_2) corresponding to an empty pressure container (106) is a reasonable value to which the system could be configured. As such, this lowest working value would therefore coincide with the pressure of the compressor at the opening instance.

Referring to claim 6: Hartwig and Burkholder teach the limitations of claim 1, discussed previously. Moreover, Hartwig discloses a compressor optimised for an internal volume factor at which the pressure of the compressor is lower than the lowest working pressure P_2 in the pressure container at the opening instance (col. 3, lines 24-26).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See accompanying form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN ZOLLINGER whose telephone number is 571-270-7815. The examiner can normally be reached on Monday - Thursday, 9 a.m. - 4 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. Z./

/Devon C Kramer/

Application/Control Number: 10/575,542

Page 7

Art Unit: 3746

Examiner, Art Unit 3746

Supervisory Patent Examiner, Art
Unit 3746